CLAIMS

1. Electron gun comprising:

- a sealed chamber (2), designed to be under a vacuum,

- a cathode (6) placed inside the chamber and which comprises an emitting face (8), capable of emitting electrons,

- an anode (4) forming a sealed window, formed facing this emitting face in one of the walls of the chamber, and capable of allowing electrons emitted by this emitting face to pass through, and

- biasing means (10) to set up a voltage between the anode and the cathode, capable of accelerating these electrons towards the anode, the electrons thus accelerated forming a beam (12) that passes through the anode,

this electron gun being characterised in that the anode (4) and the emitting face (8) each have a curvature, the curvature of the anode making it capable of resisting a pressure difference between the inside and the outside of the chamber and being designed to cooperate with the curvature of the emitting face to focus the electron beam (12) outside the chamber.

2. Electron gun according to claim 1, in which the voltage set up between the anode (4) and the cathode (6) is capable of applying an energy of less than or equal to 500 keV to the electrons.

3. Electron gun according to either of claims 1 and 2, in which the emitting face (8) of the cathode (6) comprises an emitting layer (26), capable of emitting electrons when it is heated, the electron gun also comprising means (28) for heating the cathode and therefore this emitting layer.

4. Electron gun according to claim 3, in which these heating means (28) comprise a filament (30) capable of emitting electrons when it is heated and bombarding the cathode with these electrons, the cathode and therefore the emitting layer thus being heated by electron bombardment.

5. Electron gun according to any one of claims 1 to 4, in which the anode (4) and the emitting face (8) of the cathode form portions of concentric spheres or portions of coaxial cylinders of revolution.

6. Electron gun according to any one of claims 1 to 5, in which the anode (4) comprises a thin metallic sheet, for which the thickness is less than 50 micrometers.

7. Electron gun according to any one of claims 1 to 6, in which the biasing means (10) are designed to set up a pulsed voltage between the anode (4) and the cathode (6), in order to accelerate the electrons in pulsed mode.

8. Electron gun according to claims 4 and 7, in which the biasing means (10) are designed to raise the cathode (6) to a pulsed negative high voltage with respect to the anode (4), the anode being connected to the ground, and these biasing means comprise:

- auxiliary means (80) capable of outputting a negative pulsed voltage, and
- a transformer (72) capable of transforming this negative pulsed voltage into the pulsed negative high voltage,

this transformer comprising a primary winding (78) connected to the auxiliary means (80) and a secondary winding (74) that comprises three electrical conductors (102, 104, 106), two of these conductors being provided for heating the filament (30) and to bias this filament with respect to the cathode (6), so that electrons emitted by the filament reach this cathode, the third conductor (106) being provided to raise the cathode to the pulsed negative high voltage.

9. Electron gun according to any one of claims 1 to 8, in which the anode (4) is provided with cooling means (54).

10. Electron gun according to claim 9, in which these cooling means comprise means (56) of projecting a gas onto at least part of the periphery of the anode (4).

11. Installation for electronic irradiation of at least one object, this installation comprising means of irradiating this object by a focused electron beam, installation in which the irradiation means comprise the electron gun (116) according to any one of claims 1 to 10.

12. Installation for electronic sterilisation of objects, particularly packaging components, this installation comprising means of irradiating these objects by a focused electron beam, installation in which the irradiation means comprise the electron gun (116) according to any one of claims 1 to 10.